

PROMOTE
IMMUNE SYSTEM
EFFECTIVE
MUMPS HEPATITIS A PNEUMOCOCCAL

IOWA IMMUNIZATION PROGRAM 2015 ANNUAL REPORT

PROTECT
PREVENTION

IMMUNIZE
FOR A BETTER
LIFE!

Division of Acute Disease Prevention Emergency Response/Environmental Health
Iowa Department of Public Health
Bureau of Immunization and Tuberculosis



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Introduction

The mission of the Iowa Immunization Program is to decrease vaccine-preventable diseases through education, advocacy and partnership. Vaccines are one of the greatest success stories in public health. Infectious diseases once common in the United States are now rare because of the widespread use of vaccines. For every \$1 spent on each of the eleven vaccines given routinely to children, our country saves \$10.10 in medical costs by averting costs to treat diseases. A study from the Centers for Disease Control and Prevention reports vaccines administered to children and infants over the past two decades will prevent 322 million illnesses, 21 million hospitalizations and 732,000 deaths over the course their lifetime. Immunization rates in Iowa are consistent with or exceed national averages. Health care providers are an essential stakeholder in achieving high vaccination rates. Studies consistently indicate a health care provider recommendation is the single strongest predictor of vaccination status. The Iowa Immunization Program provides immunization services throughout the state and includes the following programs: Adolescent Immunization, Adult Immunization, Immunization Registry Information System, Vaccines for Children, Perinatal Hepatitis B, and Immunization Assessment.

This report provides a summary of the activities and achievements of the Iowa Immunization Program and Iowa health care providers during 2015. It also serves as an annual informational resource for stakeholders, local partners, policy makers and the general public. Iowa-specific immunization coverage rates, funding sources, and program-specific data appear in tables and maps throughout the report. These tables and maps demonstrate not only immunization coverage levels, but also collaboration and work being done at the local level by public and private health care providers.

Immunization Program Funding

In calendar year 2015, the Immunization Program received funds from the federal Vaccines for Children Program (VFC), federal 317 grant program, state funds, and Federal Prevention and Public Health Funds totaling \$37,328,525 (Table 1).

Table 1: Calendar year 2015 total program funds

Funding Source	Calendar Year 2015
Immunization Federal	\$3,807,042
State	\$302,119
Federal PPHF Grants	\$1,428,451
DA VFC Vaccine	\$30,704,171
DA 317 Vaccine	\$801,883
State Vaccine	\$284,860
Total	\$37,328,526

Program expenditures are divided into three main categories: **vaccine purchases, contracts** with local public health agencies and immunization service providers, and **program infrastructure** (staff salary and operating expenses). The funding distribution for these three categories is illustrated in Figure 1.

Figure 1: Calendar Year 2015 Immunization Program Funding Distribution

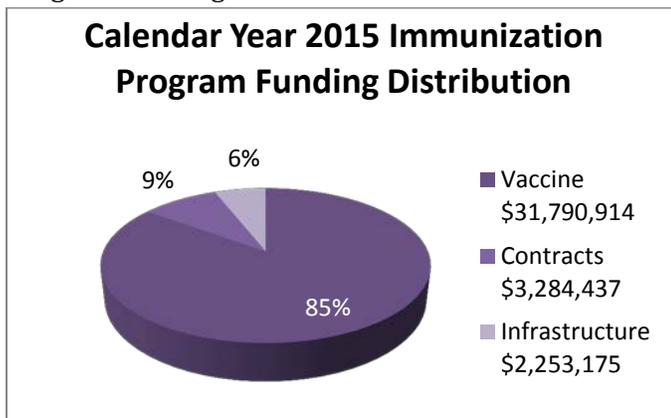
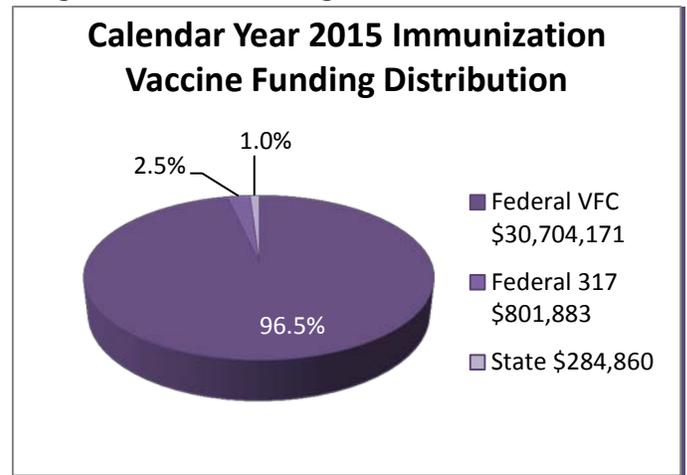


Figure 2: Calendar Year 2015 Immunization Program Vaccine Funding Distribution



Vaccine Funds

The Immunization Program completes annual population estimates and vaccine forecasting for Iowa’s population, which is used by Centers for Disease Control and Prevention (CDC) to determine vaccine funding for the upcoming year. The Immunization Program received funding for vaccines from the federal VFC Program, federal 317 grant vaccine funds, and state funds. Figure 2 includes the vaccine funding distribution for calendar year 2015. Of the program’s \$37 million dollar 2015 budget, nearly \$32 million was spent on vaccines.

In 2015, Iowa received \$30,704,171 from the federal VFC Program for vaccine. These funds account for 96.5 percent of the program’s total vaccine budget. These funds are used to immunize children birth through 18 years of age who meet the following eligibility: Medicaid enrolled, uninsured, underinsured, American Indian or Alaskan Native.

The Immunization Program receives federal 317 vaccine funds annually. In calendar year 2015, Iowa received \$801,883 in 317 grant funds which comprises two and one half percent of the program's total vaccine budget. In 2015, Iowa used federal 317 grant funds to vaccinate underinsured children served by select public health agencies.

In 2015, \$284,860 of state funds were used to purchase vaccine which comprised less than one percent of the program's total vaccine budget. State funds are used to pay for vaccines for children who do not meet VFC eligibility requirements.

Immunization Education

2015 Immunization Summit

Over 650 health care professionals attended the 2015 Immunization Summit held in Des Moines on October 28-29, 2015. An *Epidemiology and Prevention of Vaccine-Preventable Diseases* - Pink Book Course was held October 28, 2015.

Speakers were Donna L. Weaver, RN, MN; National Center for Immunization and Respiratory Diseases, CDC and Dr. Ray Strikas, MD, MPH, FACP; Senior Advisor Immunization Services Division, CDC. All participants received a complimentary copy of the *Epidemiology and Prevention of Vaccine-Preventable Diseases, Pink Book 13th Edition*.

The 2015 Iowa Immunization Conference was held on October 29th, 2015. This conference focused on current immunization information and vaccine education for health care providers. The conference has grown from a group of about 20 local public health agency staff in 1994 to more than 650 attendees from 14 states.

Conference speakers included Dr. Paul A. Offit, Chief of the Division of Infectious Diseases and the Director of the Vaccine Education Center at the Children's Hospital of Philadelphia, Dr. Wendy Swanson; Seattle Children's Hospital; Dr. Noel Brewer, University of North Carolina, Director of Cervical-Free Cancer North Carolina;

Dr. Sandra Fryhofer, Adjunct Associate Professor of Medicine at Emory University, ACIP Member; Karen Ernst, Director, Voices for Vaccines; and Dr. William Atkinson, Immunization Action Coalition, Associate Director for Immunization Education.

Immunization Update Newsletter

The Immunization Update is a quarterly newsletter produced and distributed by the Iowa Immunization Program. This newsletter features important immunization information, vaccine recommendations, and changes regarding the Vaccines for Children Program, IRIS, and storage and handling guidelines. Also included are practical vaccination resources, a question and answer corner and training announcements. Current and past issues of the newsletter can be found on the Immunization Program webpage:

<http://www.idph.iowa.gov/immtb/immunization/newsletters>

To receive Immunization Program updates directly, recipients can send a blank e-mail to: join-IMMUNIZATION@lists.ia.gov.

Brochures and Print Materials

The Immunization Program offers educational materials for parents and health care providers. Materials include brochures, school/child care audit forms, reminder/recall postcards, temperature logs, posters and VFC Program forms. Educational materials can be printed or ordered free of charge. In 2015, the Immunization Program shipped 190,153 pieces of educational materials which is an average of 3,656 items per week.

Immunization educational materials may be ordered on the Immunization Program webpage: www.idph.iowa.gov/immtb/immunization/form

Immunization Consultation

The Iowa Immunization Program staff is available Monday - Friday 8:00 a.m. - 4:30 p.m. for consultation regarding program activities, IRIS and immunization related questions. Please refer to Appendix A, Immunization Staff Directory, for contact information.

Immunization Registry Information System

Iowa's Immunization Registry Information System (IRIS) is a confidential, computerized repository of individual



immunization records from participating public and private health care providers. IRIS includes patient records from all ages and is used to keep patients on schedule for their recommended immunizations by storing immunization records, documenting vaccine contraindications and reactions, validating immunization history, providing vaccine recommendations, producing patient reminder and recall notices, and managing vaccine inventory.

IRIS Users and Organizations

Enrollment in IRIS is available to all health care providers in Iowa that administer immunizations. In 2015, 175 new organizations enrolled in IRIS for a total of 2,308 participating organizations. Sites include private health care clinics, local public health agencies, rural health clinics, hospitals, pharmacies, long-term care centers, and schools.

IRIS Trainings

IRIS staff provided 24 training opportunities in 2015. Training opportunities included webinars on the following topics: monthly question and answer sessions, Human Papillomavirus (HPV) reminder recall, entry of vision screening results into IRIS, and entry of school and child care audit data into IRIS. More than 1,100 IRIS users participated in these trainings.

IRIS - Interoperability Funding

In 2014, Iowa received funds from the Prevention and Public Health Fund (PPHF) to enhance interoperability between electronic health records (EHRs) and IRIS. Funds are being used throughout the two-year project period to improve the efficiency, effectiveness, and quality of immunization data contained in the registry. The program will work to strengthen the immunization information technology infrastructure and enhance the program's capacity to support and extend interoperability between IRIS and EHR systems. Throughout 2015, the Immunization Program worked with 322 additional health care providers to send electronic files to IRIS. As of December 31, 2015, 731 organizations were exchanging electronic immunization data with IRIS.

IRIS Quick Stats - 2015

- Total number of immunizations in IRIS:
32,668,051
- Total number of clients/patients in IRIS:
3,632,666
- Number of organizations enrolled in IRIS:
2,508
- Total number of active and distinct users:
12,539

IRIS Data Exchange by the Numbers - 2015

- Total number of organizations sending immunizations or querying IRIS: **731**
- Total number of real-time transactions through IRIS: **4,170,592**
- Percentage of transactions coming into IRIS from data exchange vs direct web entry: **51.4%**

IRIS – VTrckS Funding

Iowa received funds from the Prevention and Public Health Fund (PPHF) in 2012 to develop a vaccine ordering module in IRIS that interfaces with CDC's Vaccine Tracking System (VTrckS). In 2014, Iowa received additional PPHF funds to support the VTrckS interface. Throughout 2015, the Iowa Immunization Program worked to build upon existing infrastructure to enhance the vaccine ordering and distribution system, including seasonal influenza vaccine. Other enhancements to IRIS will address the process for managing and tracking vaccine wastage and returns, and data monitoring functionality with the development of data quality monitoring tools.

IRIS Records

The number of Iowa patients in IRIS has steadily increased, see Tables 2 and 3. More than 236,000 patient records were added in 2015, and IRIS contains more than 32.6 million immunizations. IRIS includes records consisting of two or more immunizations for 96.9 percent of Iowa's children 4 months to 6 years of age.

Table 2: Number of patient records in IRIS with an Iowa zip code compared to Iowa's population

Number of Iowans in IRIS by Year			
Year	Iowa Patient Records in IRIS	Population of Iowa*	Percent of Iowa population in IRIS
2012	2,136,380	3,018,988	71
2013	2,328,983	3,022,322	77
2014	2,524,059	3,024,770	83
2015	2,765,966	3,026,380	91

*Population CDC Wonder - <http://wonder.cdc.gov/population-projections.html>

Table 3: Number of patient records in IRIS by year and by age group

Patients in IRIS by Year*			
Year	Patients in IRIS ages 4 months through 5 years with two or more immunizations recorded	Patients in IRIS ages 11 years through 17 years with 2 or more immunizations recorded	Patients in IRIS over the age of 19 years with 1 or more immunization recorded
2012	211,258	159,968	1,141,659
2013	211,714	176,308	1,171,201
2014	212,487	188,126	1,496,633
2015	215,678	200,446	1,672,148

*Data as reported in the Immunization Information System Annual Report

Vaccines for Children Program

The Vaccines for Children (VFC) program is a federally funded program established in 1994 to provide vaccines at no cost to eligible children from birth through 18 years of age. Since its establishment and over a 20 year period, the VFC program has had a significant impact on U.S. children:



- Prevention of 322 million illnesses
- Help avoid 732,000 deaths
- Save nearly \$1.4 trillion in total societal cost (includes \$299 billion in direct costs)

The VFC Program provides vaccine for approximately 46 percent, or 348,579 of Iowa’s children from birth through 18 years of age. Eligible children include those who are enrolled in Medicaid, uninsured, underinsured, American Indian or Alaskan Native. In 2015, the Iowa VFC Program distributed 617,042 doses of vaccine (Table 4), valued at more than \$31 million, to VFC-enrolled health care providers.

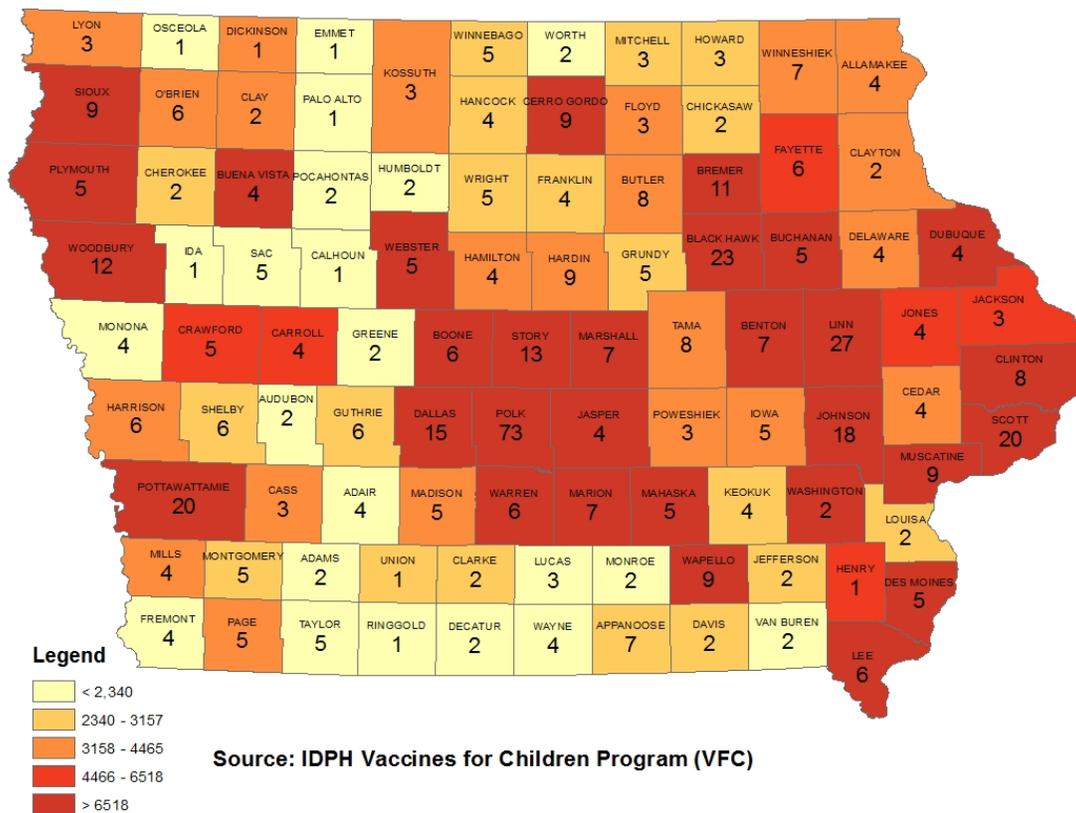
Table 4: 2015 VFC vaccine doses distributed

Vaccine	Doses Distributed
DT	62
DTaP	19,000
DTaP-IPV (Kinrix)	15,740
DTaP-IPV/Hib (Pentacel)	17,270
DTaP-IPV-Hep B (Pediarix)	43,014
Tdap	19,510
Td	681
Hep A	52,210
Hep B	29,830
Hep A-Hep B (Twinrix)	910
Hep B/Hib (Comvax)	0
Hib	49,660
HPV	36,560
IPV	7,630
MMR	24,520
MMR-Varicella (MMRV)	17,610
MCV	19,305
PCV 13	76,310
Rotavirus	47,040
Varicella	25,370
Influenza	114,810
Total Doses Distributed	617,042

As of December 31, 2015, Iowa's VFC Program had 599 participating providers. Enrolled providers include local public health agencies, Indian Health Services, Women Infants and Children (WIC) clinics, private health care providers, hospitals, pharmacies, rural health clinics, Federally Qualified Health Centers, and family planning clinics.

Figure 3 includes the number of VFC providers by county and the number of children in the county less than 18 years of age. Each of Iowa's 99 counties has at least one VFC Program provider serving eligible children.

Figure 3: Number of VFC Providers in Iowa by County and Population Less than 18 Years of Age

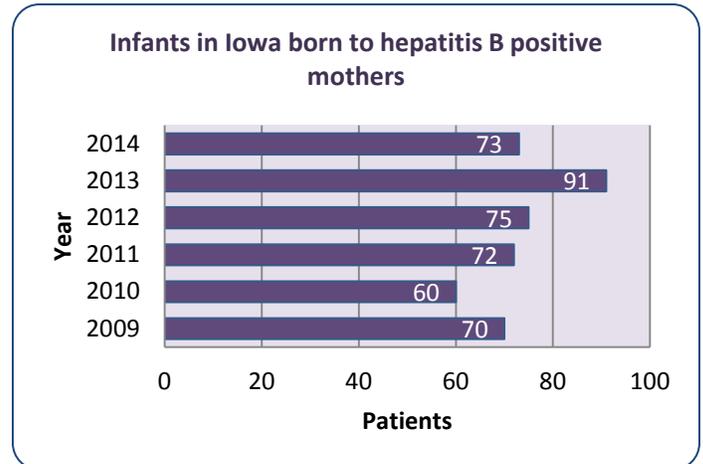


Hepatitis B Program

Perinatal Hepatitis B Program

Hepatitis B is a serious disease caused by the hepatitis B virus (HBV), which can be transmitted from an infected mother to her infant at birth. Iowa's Perinatal Hepatitis B Program works to prevent transmission of hepatitis B infection from mothers to infants by conducting parent and health care provider education, case management of mothers and babies, distribution of hepatitis B vaccine and hepatitis B immune globulin (HBIG), and laboratory testing. In 2014, there were 73 infants born to hepatitis B infected mothers reported (Figure 4).

Figure 4: Iowa infants born to hepatitis B positive mothers



Universal Hepatitis B Vaccine Birth Dose Program

The Immunization Program provides hepatitis B vaccine to hospitals to universally administer the birth dose of hepatitis B vaccine to all newborns regardless of insurance coverage. In 2015, 29 of 78 birthing hospitals in Iowa were enrolled in the Universal Hepatitis B Vaccine Birth Dose Program. The 2014 National Immunization Survey (NIS) for hepatitis B vaccine among infants birth to 3 days of age indicates Iowa has a hepatitis B birth dose rate of 68.2 percent. While the percentage of infants who received the birth dose of hepatitis B decreased from 2013, Iowa ranks 18 out of the 58 assessed immunization projects. This is an increase in ranking from 48 of 63 immunization projects assessed in 2012. The program continues initiatives to increase the number of Iowa infants who receive a birth dose of vaccine. These efforts include the Universal Hepatitis B Vaccine Birth Dose Program, promoting birthing hospitals' enrollment in the VFC Program, and encouraging birthing hospitals to enroll in the Immunization Action Coalition's (IAC) Hepatitis B Birth Dose Honor Roll. Eight Iowa birthing hospitals have been named to IAC's Hepatitis B Birth Dose Honor Roll; three hospitals received this recognition for two consecutive years and one hospital was recognized for three consecutive years.

Perinatal Hepatitis B Prevention Champions in Iowa

In 2013, the Immunization Action Coalition's (IAC) created the Hepatitis B Birth Dose Honor Roll. The Honor Roll was created to recognize hospitals and birth centers who achieved 90 percent or greater coverage rate of administering hepatitis B vaccine to newborns prior to discharge. To protect newborns from hepatitis B viral infection, birthing hospitals who qualify must also implement written policies, procedures, and protocols. More information about the Hepatitis B birth Dose Honor Roll is available at <http://www.immunize.org/honor-roll/birthdose/>.

Congratulations to the following Iowa hospitals for their inclusion into IAC's Hepatitis B Birth Dose Honor Roll:

Avera Holy Family Hospital, Estherville

- Coverage rate of 99% from 1/1/2015 - 12/31/2015.

Cass County Memorial Hospital, Atlantic

- Coverage rate of 96% from 7/1/2014 - 6/30/2015.

Fort Madison Community Hospital, Fort Madison

- Coverage rate of 96% from 1/1/2014 - 1/1/2015.

Greene County Medical Center, Jefferson

- Coverage rate of 100% from 1/1/2014 - 12/31/2014.
- Coverage rate of 100% from 11/1/2012 - 10/31/2013.

Mary Greeley Medical Center, Ames

- Coverage rate of 94% from 1/1/2014 - 12/31/2014.
- Coverage rate of 93% from 1/1/2013 - 12/31/2013.

Mercy Medical Center, Mason City

- Coverage rate of 93% from 6/1/2013 - 6/1/2014.

Myrtue Medical Center, Harlan

- Coverage rate of 96% from 7/1/2013 - 6/30/2014.
- Coverage rate of 94% from 7/1/2012 - 6/30/2013.

St. Anthony Regional Hospital, Carroll

- Coverage rate of 96% from 1/1/2014 - 11/30/2015.
- Coverage rate of 97% from 1/1/2012 - 12/31/2013.

Myrtue Medical Center, Harlan

- Coverage rate of 94% from 7/1/2012 - 6/30/2013
- Coverage rate of 96% from 7/1/2013 - 6/30/2014

Greene County Medical Center, Jefferson

- Coverage rate of 100% from 11/1/2012 - 10/31/2013

Mary Greeley Medical Center, Ames

- Coverage rate of 93% from 1/1/2013 - 12/31/2013
- Coverage rate of 94% from 1/1/2014 - 12/31/2014

Mercy Medical Center, Mason City

- Coverage rate of 93% from 6/1/2013 - 6/1/2014

St. Anthony Regional Hospital, Carroll

- Coverage rate of 97% from 1/1/2012 - 12/31/2013

High-Risk Adult Hepatitis B Program

The Immunization Program in collaboration with the Hepatitis Program provides hepatitis A and hepatitis B vaccine for high-risk patients seen at nine Counseling, Testing, and Referral (CTR) sites. High-risk patients include injection drug users, men who have sex with men, persons with a current sexually transmitted disease diagnosis, human immunodeficiency virus (HIV) or hepatitis C infected persons, and sexual partners of persons infected with HIV, hepatitis A, or hepatitis B. In 2015, the Immunization Program distributed 910 doses of adult hepatitis A/hepatitis B vaccine (Twinrix) to CTR sites; 832 of those doses have been administered to clients.

Immunization Assessments

Immunization assessments serve as a means to evaluate immunization practices and progress towards achieving established goals. Immunization records are assessed to determine the percentage of patients who are age-appropriately vaccinated consistent with the recommended immunization schedule. Immunization assessment data are used to improve health care providers' standard immunization practices and immunization delivery systems and to guide strategies and policies, which directly impact the overall immunization rates of their patients.

County and State Immunization Rates

The Immunization Program uses data from the Immunization Registry Information System (IRIS) to calculate county and state immunization rates for 2-year-old children and adolescents 13-15 years of age. These data provide immunization rates based upon a standard vaccination series identified by the Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC).

The report includes patients served by both public and private health care providers with a record in IRIS that have a zip code and are an 'active' patient within a health care provider organization. A patient's status becomes 'active' in an organization when an immunization is administered or when the health care provider selects this status on a patient record.

The report for each age group includes the estimated number of children in the county, the number of records meeting the assessment criteria and the corresponding percentage of records in IRIS. These data are used to calculate the percentage of records in IRIS for each county. The population percentage by county ranges from 33-139 percent with a state average of 94 percent for 2-year-old children and range from 38-143 percent with a state average of 102 percent for adolescents, 13-15 years of age. Rates greater than 100 percent can be attributed to the difference between the actual numbers of

children in the county compared to the county population estimates.

2-Year-Old Immunization Rates

The 2-year-old county immunization rate for the 4-3-1-3-3-1-4 series (4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age) ranges from 44 to 89 percent, with a state immunization rate of 67 percent. The state immunization rate includes the assessment of 36,463 patient records, which is approximately 94 percent of Iowa's 2-year-old population (Table 5).

Adolescent 13-15-Year-Old Immunization Rates

The adolescent, 13-15-year-old, county immunization rate for the 3-1-2-1-2 (3 Hep B, 1 Meningococcal, 2 MMR, 1 Td or Tdap, 2 Varicella) series ranges from 14 to 78 percent, with an average state immunization rate of 52 percent. The state immunization rate includes the assessment of 124,556 patient records, which is approximately 102 percent of Iowa's 13-15-year-old population. The county immunization rate for HPV vaccine received by adolescent girls, ages 13-15, ranges from eleven to 44 percent, with an average state immunization rate of 26 percent. The county immunization rate for HPV vaccine received by adolescent males, ages 13-15, range from five to 39 percent, with an average state immunization rate of 17 percent (Table 6).

Human Papillomavirus (HPV) Vaccination Rates among Adolescents

In 2015, Iowa received a no-cost grant extension from the Prevention and Public Health Fund (PPHF) to continue work related to increasing HPV vaccination rates among adolescents through September 2016. In Iowa, only 21 percent of adolescents aged 13-15 have received the three doses of HPV vaccine recommended for full protection. In comparison, 80 percent of 13-15 year-olds in Iowa have received the Tdap vaccine, which protects against tetanus, diphtheria and pertussis. The Iowa Immunization Program continues work on the following initiatives to increase HPV vaccination rates of adolescents living in Iowa:



- Partnering with the Iowa Chapter of the American Academy of Pediatrics (IA AAP) and Iowa Academy of Family Physicians (IAFP) to increase HPV vaccination rates in Iowa through health care provider education. Providers play an important role in improving the uptake of this life-saving vaccine.
- Continuing the statewide HPV vaccine initiative with stakeholders including immunization providers as well as cancer prevention and control programs.
- Maintaining comprehensive communication campaign targeted to the public, with emphasis on reaching parents/guardians of children aged 11–18 years.
- Promoting communication campaign targeting health care providers to encourage HPV vaccination consistent with other recommended adolescent vaccines.
- Utilizing existing IRIS tools (benchmark, assessment coverage reports) to evaluate current HPV vaccine coverage levels by county/provider and conduct reminder/recall activities to increase HPV vaccine coverage rates.
- Using assessment and feedback (AFIX) site visits to evaluate the performance of providers in administering the 3-dose HPV vaccine series consistent with current ACIP recommendations and present this information to providers to guide changes, if needed, in their clinical practice patterns.
- Tracking HPV vaccine coverage by county for each of the three doses in the vaccine series.

Conclusion

The Immunization Program’s vision is healthy Iowans living in communities free of vaccine-preventable diseases. Iowa health care providers are essential to promote vaccines and provide sound science-based immunization education to their patients. The most significant factor in a parent’s decisions to vaccinate their children is a health care provider’s recommendation. When a provider offers a strong and clear recommendation, patients are four to five times more likely to be vaccinated.

As included in this report, many barriers have been overcome once limiting the widespread availability and use of vaccines. Vaccines are essential tools in preventing devastating, widespread disease; diseases now rare due to the achievement of high immunization rates. The absence of these diseases no longer serves as a reminder of their severity and potential life-threatening complications.

The Iowa Immunization Program is committed to promoting immunizations through the implementation of strategies to achieve and maintain high vaccination levels. We cannot rest on our past achievements and successes but must remain diligent in promoting and protecting the health of Iowans against vaccine-preventable diseases. If we forget the history of these diseases, we may be doomed to repeat it. Vaccines prevent diseases and save lives. Immunize for a better life.

Tables and Maps

**Table 5: Iowa Department of Public Health, Immunization Program
2015 County Immunization Assessment
2 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series**

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
State	39007	36463	94	74	86	83	83	86	82	73	67
Adair	61	54	89	91	96	96	94	96	96	83	80
Adams	51	61	120	62	90	85	90	92	85	69	61
Allamakee	189	197	104	69	83	80	80	80	76	63	56
Appanoose	144	137	95	73	88	85	86	88	84	66	62
Audubon	50	63	126	73	81	83	75	86	79	67	67
Benton	287	252	88	78	90	85	89	89	84	81	73
Black Hawk	1684	1762	105	81	92	86	89	92	85	83	76
Boone	293	304	104	84	91	88	89	90	88	83	77
Bremer	242	271	112	86	88	89	90	91	87	85	80
Buchanan	276	258	94	77	85	84	82	86	82	76	74
Buena Vista	308	366	119	74	91	85	91	91	86	75	65
Butler	180	162	90	86	91	89	89	90	88	81	77
Calhoun	107	104	97	78	88	84	88	87	84	79	72
Carroll	247	204	83	78	92	89	91	91	90	76	73
Cass	144	172	119	83	88	87	86	89	87	80	78
Cedar	169	144	85	71	83	83	81	79	82	70	58
Cerro Gordo	478	456	95	90	96	96	96	95	96	89	86
Cherokee	141	143	101	73	86	85	85	90	85	78	71
Chickasaw	158	134	85	78	91	87	88	91	86	78	73
Clarke	119	117	98	75	87	84	85	88	84	74	69
Clay	204	211	103	91	94	93	93	95	93	89	89
Clayton	206	175	85	64	72	77	73	73	76	62	57
Clinton	555	575	104	72	88	86	85	90	83	74	64
Crawford	233	262	112	75	89	88	87	90	87	75	68
Dallas	1294	670	52	80	89	86	86	89	85	77	72
Davis	129	76	59	76	82	87	78	82	82	67	59
Decatur	93	91	98	65	80	76	78	84	74	62	56

¹ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

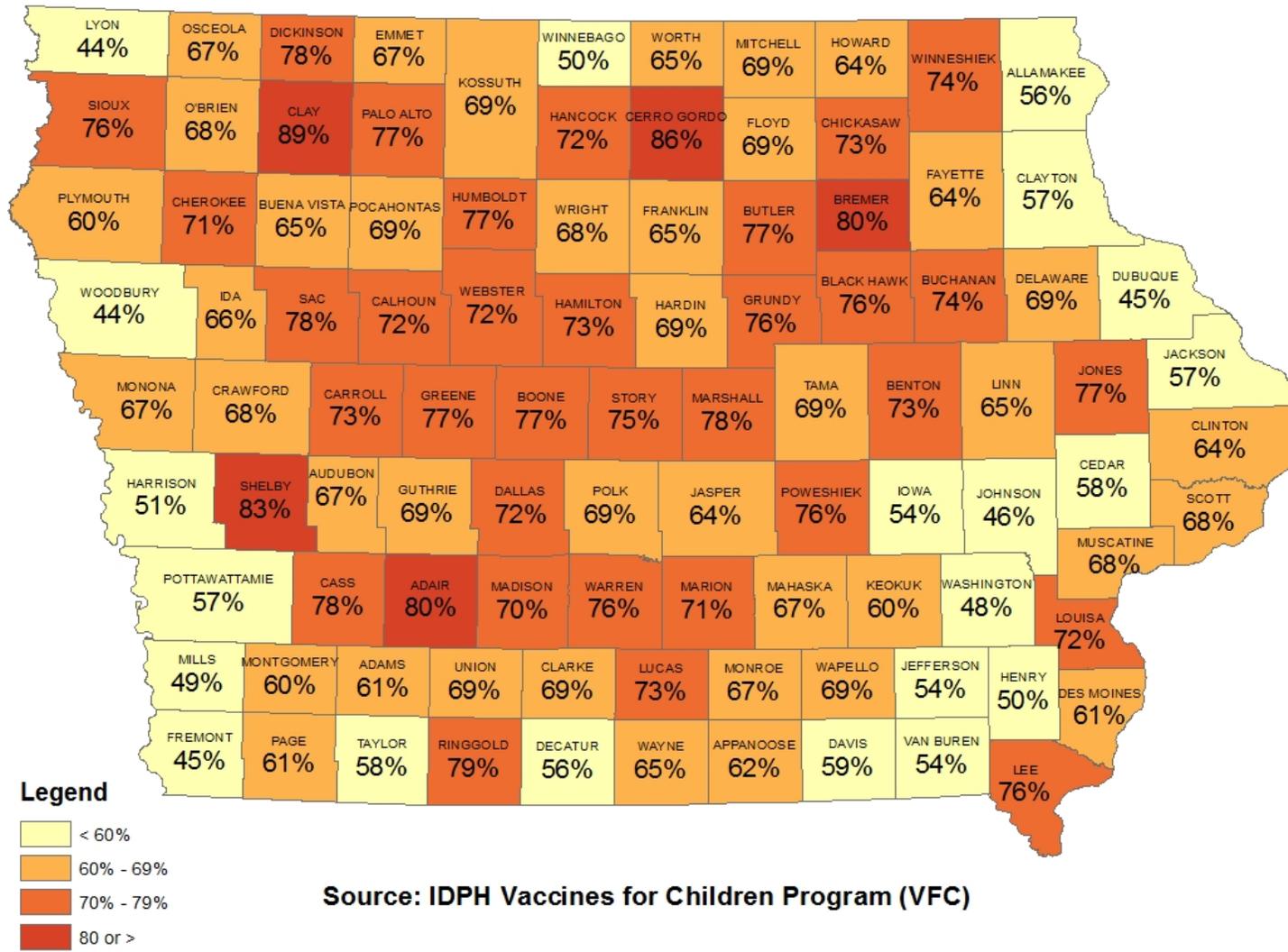
² Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

³ Up-To-Date are children who have completed the 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV by 24 months of age.

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
Delaware	193	163	85	74	87	82	86	87	80	75	69
Des Moines	472	380	81	67	82	80	80	82	79	68	61
Dickinson	164	188	115	81	87	86	85	89	86	80	78
Dubuque	1179	389	33	48	62	59	52	64	59	53	45
Emmet	115	124	108	73	84	77	79	87	77	73	67
Fayette	226	205	91	73	86	81	84	88	82	73	64
Floyd	172	178	104	79	87	88	83	89	85	75	69
Franklin	109	100	92	74	88	90	86	86	88	73	65
Fremont	74	53	72	55	70	70	68	72	68	49	45
Greene	101	126	125	81	88	87	87	89	86	81	77
Grundy	144	141	98	84	94	88	91	94	89	81	76
Guthrie	113	112	99	74	89	87	86	91	86	75	69
Hamilton	163	190	117	81	93	92	92	91	89	82	73
Hancock	117	110	94	75	86	85	82	91	85	76	72
Hardin	184	213	116	72	91	89	91	91	87	81	69
Harrison	164	139	85	63	74	73	72	65	71	58	51
Henry	241	280	116	59	71	69	68	74	69	55	50
Howard	128	113	88	75	86	83	82	86	81	69	64
Humboldt	96	133	139	81	89	89	89	89	90	83	77
Ida	115	83	72	75	87	86	86	84	83	75	66
Iowa	200	132	66	61	77	76	80	77	70	63	54
Jackson	223	145	65	66	86	81	83	81	81	68	57
Jasper	402	329	82	72	85	82	82	87	81	71	64
Jefferson	150	104	69	76	84	86	83	74	83	66	54
Johnson	1775	1355	76	52	64	74	70	62	71	53	46
Jones	215	197	92	86	93	91	92	93	89	84	77
Keokuk	120	115	96	72	89	86	86	83	85	70	60
Kossuth	157	180	115	74	87	87	87	87	87	71	69
Lee	444	412	93	81	93	89	90	92	91	81	76
Linn	2712	2517	93	73	82	79	80	82	78	71	65
Louisa	108	128	119	77	88	85	86	90	85	77	72
Lucas	93	71	76	83	93	90	92	90	92	77	73
Lyon	175	144	82	51	62	60	62	65	59	46	44
Madison	176	149	85	79	88	85	86	90	79	78	70
Mahaska	272	267	98	76	87	83	87	86	82	72	67
Marion	414	368	89	80	88	84	86	88	85	78	71
Marshall	583	553	95	82	90	88	90	91	87	81	78
Mills	155	99	64	58	73	70	72	68	71	69	49
Mitchell	127	127	100	76	87	85	81	88	83	71	69
Monona	95	81	85	74	49	83	85	89	80	73	67
Monroe	86	73	85	71	82	85	81	88	84	68	67
Montgomery	114	140	123	69	84	80	82	82	80	64	60
Muscatine	579	549	95	77	90	84	85	89	83	77	68

County	County Population Born in 2013 Estimate ¹	Total Records Analyzed from IRIS ²	Percent of Population in IRIS	4 DTaP Coverage Percent	3 Polio Coverage Percent	1 MMR Coverage Percent	3 Hib Coverage Percent	3 Hep B Coverage Percent	1 Varicella Coverage Percent	4 PCV Coverage Percent	Up-To-Date 4-3-1-3-3-1-4 Coverage Percent ³
O'Brien	171	210	123	74	91	88	90	91	86	73	68
Osceola	88	81	92	75	85	84	84	86	83	72	67
Page	173	186	108	69	80	78	80	82	78	67	61
Palo Alto	109	129	118	81	90	90	88	88	88	81	77
Plymouth	288	265	92	67	80	77	75	83	77	70	60
Pocahontas	96	97	101	76	92	92	87	93	91	79	69
Polk	6690	6817	102	78	89	86	84	89	85	75	69
Pottawattamie	1166	1171	100	65	84	75	83	81	74	65	57
Poweshiek	188	187	100	80	88	87	88	91	87	79	76
Ringgold	55	48	87	81	94	92	92	94	94	85	79
Sac	115	109	95	83	91	94	87	91	93	82	78
Scott	2240	2385	107	75	88	84	85	89	83	75	68
Shelby	142	121	85	87	93	93	89	92	92	86	83
Sioux	513	547	107	81	93	93	91	93	91	81	76
Story	945	1083	115	79	88	85	88	87	84	80	75
Tama	207	218	105	78	90	86	87	88	83	77	69
Taylor	87	89	102	67	84	79	80	83	80	66	58
Union	164	147	90	77	90	91	86	90	89	76	69
Van Buren	103	72	70	67	89	86	89	89	75	67	54
Wapello	421	317	75	80	92	90	87	90	91	78	69
Warren	575	518	90	83	92	88	86	92	87	82	76
Washington	297	243	82	61	77	78	77	78	74	57	48
Wayne	98	95	97	69	77	85	80	83	84	67	65
Webster	427	496	116	77	91	89	87	93	89	77	72
Winnebago	106	130	123	58	72	76	71	71	77	57	50
Winneshiek	159	191	120	84	92	89	91	87	86	81	74
Woodbury	1500	1197	80	49	63	61	55	64	61	48	44
Worth	73	71	97	68	77	77	76	76	77	70	65
Wright	124	167	135	73	92	90	91	93	90	78	68

Figure 5: 2015 County Immunization Assessment Map
2 Year-Old Coverage of Selected Vaccination Series⁴



⁴ Shows coverage for 4 DTaP, 3 Polio, 1 MMR, 3 Hib, 3 Hep B, 1 Varicella, 4 PCV vaccine series by 24 months of age.

**Table 6: Iowa Department of Public Health, Immunization Program
2015 County Adolescent Immunization Assessment
13-15 Year-Old Coverage of Individual Vaccines and Selected Vaccination Series**

County	County Population 2013 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
State	122236	124556	102	89	64	86	80	70	52	21	26	17
Adair	290	242	83	97	82	96	89	87	75	40	41	39
Adams	135	129	96	92	43	89	74	67	36	15	21	9
Allamakee	514	562	109	93	63	93	77	77	49	17	24	11
Appanoose	474	486	103	89	43	89	71	51	30	10	14	8
Audubon	213	182	85	97	67	96	91	84	62	28	32	24
Benton	1110	1075	97	92	77	91	84	80	65	28	34	22
Black Hawk	4434	5427	122	96	78	93	86	82	69	30	36	24
Boone	1047	1017	97	94	76	92	87	78	64	25	31	21
Bremer	925	1048	113	93	80	90	88	77	66	34	43	26
Buchanan	986	1067	108	93	70	93	90	80	63	33	40	27
Buena Vista	809	1154	143	88	29	83	69	62	24	11	14	8
Butler	585	640	109	93	69	91	89	78	58	30	36	25
Calhoun	351	407	116	94	57	92	87	61	38	14	20	9
Carroll	836	842	101	91	49	90	86	61	39	11	16	6
Cass	534	629	118	98	82	95	87	89	78	39	42	37
Cedar	778	705	91	92	65	90	83	70	50	22	28	17
Cerro Gordo	1562	1589	102	98	83	96	92	84	73	32	36	28
Cherokee	425	431	101	95	63	94	82	79	55	26	33	19
Chickasaw	514	499	97	93	69	91	90	74	55	22	25	21
Clarke	389	429	110	90	69	87	80	71	55	24	30	18
Clay	627	661	105	93	59	89	80	63	43	20	24	16
Clayton	676	540	80	76	39	73	80	54	30	13	16	10
Clinton	1958	2018	103	91	50	90	83	64	41	16	20	12
Crawford	723	815	113	93	59	92	85	75	48	25	30	20
Dallas	3516	2107	60	89	75	85	83	72	58	21	26	17
Davis	419	268	64	92	50	91	82	63	40	11	13	9
Decatur	304	263	87	90	39	89	83	47	30	16	19	13
Delaware	757	666	88	92	77	90	88	81	72	35	44	27

⁵ Source from <http://wonder.cdc.gov/bridged-race-population.html>.

⁶ Data retrieved from Iowa's Immunization Registry Information System (IRIS) by county zip codes and with a status of Active in an organization.

⁷ "Up-to-Date" refers to adolescents 13- to 15-year-olds who have completed the 3 Hep B, 1 Meng, 2 MMR, 1 Td or Tdap, 2 Varicella series.

County	County Population 2013 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
Des Moines	1530	1731	113	90	19	83	65	59	14	8	11	5
Dickinson	603	666	110	95	52	95	78	65	44	25	28	23
Dubuque	3785	1443	38	67	38	57	55	48	31	16	20	13
Emmet	363	394	109	78	39	69	79	40	23	20	21	20
Fayette	736	804	109	93	47	93	87	73	39	24	29	19
Floyd	648	626	97	88	44	84	82	54	32	17	22	14
Franklin	413	404	98	94	47	90	83	65	35	20	25	14
Fremont	273	251	92	86	72	84	76	75	57	22	26	18
Greene	417	419	101	95	66	93	82	75	56	21	23	19
Grundy	518	500	97	97	59	94	87	75	51	21	30	15
Guthrie	449	501	112	94	69	93	87	80	60	24	27	21
Hamilton	661	708	107	97	49	95	87	69	42	17	24	12
Hancock	455	477	105	97	67	94	88	76	58	21	29	15
Hardin	693	761	110	92	61	90	83	76	51	18	23	13
Harrison	606	675	111	94	77	92	81	77	61	25	31	24
Henry	813	881	108	92	49	89	81	72	42	17	20	14
Howard	396	442	112	87	63	86	84	66	53	23	27	18
Humboldt	364	465	128	91	67	91	87	75	59	20	27	14
Ida	255	290	114	88	36	83	70	61	30	11	16	7
Iowa	634	610	96	87	58	86	74	59	37	17	23	11
Jackson	819	514	63	82	36	76	82	54	28	12	17	10
Jasper	1455	1262	87	78	57	73	73	61	43	15	20	11
Jefferson	528	425	81	83	42	80	73	56	30	16	22	11
Johnson	4385	3799	87	71	51	68	57	51	30	18	20	15
Jones	774	747	97	85	74	86	85	74	59	15	21	8
Keokuk	414	439	106	88	62	87	80	67	47	20	25	14
Kossuth	593	584	99	97	74	96	86	79	66	13	19	6
Lee	1272	1282	101	89	56	87	81	74	48	22	26	18
Linn	9075	8922	98	82	63	80	72	64	48	17	21	14
Louisa	502	551	110	87	42	83	73	56	33	21	25	18
Lucas	401	341	85	88	73	87	87	71	51	29	27	30
Lyon	542	487	90	81	47	81	75	61	36	13	15	11
Madison	744	815	110	93	72	92	85	75	58	18	23	13
Mahaska	930	798	86	87	68	86	82	69	50	17	21	14
Marion	1391	1451	104	92	69	89	86	73	57	13	19	7
Marshall	1697	2078	123	97	78	94	85	86	72	34	39	31
Mills	650	616	95	74	66	73	78	57	43	20	25	15
Mitchell	480	350	73	91	71	89	86	66	52	19	27	11
Monona	354	350	99	96	69	96	89	88	64	35	36	35
Monroe	313	300	96	90	62	90	89	77	51	22	31	13
Montgomery	437	475	109	87	71	88	85	71	53	21	29	14
Muscatine	1855	1953	105	85	62	84	83	68	49	21	28	16

County	County Population 2013 Estimate ⁵	Total Records Analyzed from IRIS ⁶	Percent of Population in IRIS	3 Hep B Coverage Percent	1 Meningitis Coverage Percent	2 MMR Coverage Percent	1 Td/Tdap Coverage Percent	2 Varicella Coverage Percent	Up-to-Date 3-1-2-1-2 Coverage Percent ⁷	3 HPV All Genders Coverage Percent	3 HPV Female Coverage Percent	3 HPV Male Coverage Percent
O'Brien	568	630	111	93	62	92	84	67	46	32	33	31
Osceola	233	277	119	90	27	83	73	61	23	18	23	13
Page	518	604	117	91	75	89	74	78	57	24	32	18
Palo Alto	318	406	128	97	65	96	92	81	58	23	23	24
Plymouth	1063	1019	96	89	47	87	78	69	39	16	18	15
Pocahontas	270	295	110	91	60	91	87	70	48	27	28	26
Polk	18469	21326	116	89	75	85	82	74	61	20	25	14
Pottawattamie	3669	3465	94	83	69	81	75	71	53	26	31	21
Poweshiek	697	730	105	94	68	92	93	75	58	21	25	18
Ringgold	235	201	86	97	82	98	91	88	76	32	40	26
Sac	390	374	96	90	47	87	86	62	38	16	23	10
Scott	6809	7939	117	89	62	86	80	72	54	22	28	17
Shelby	502	544	109	98	84	98	90	90	78	39	41	37
Sioux	1477	1678	117	92	50	92	84	69	43	16	18	15
Story	2646	2996	113	92	71	88	84	78	63	21	25	18
Tama	770	874	114	94	76	93	85	80	65	30	34	27
Taylor	260	277	107	92	69	91	89	78	58	22	30	14
Union	483	574	119	95	73	94	84	82	67	28	36	19
Van Buren	297	305	103	87	47	87	72	65	34	14	17	10
Wapello	1298	1677	129	90	67	85	77	74	57	22	25	18
Warren	2264	2175	96	92	75	89	87	76	62	17	24	12
Washington	979	882	90	85	60	85	65	67	41	24	26	22
Wayne	260	244	94	80	42	77	88	48	23	16	20	11
Webster	1346	1660	123	93	59	90	80	70	49	18	24	13
Winnebago	407	441	108	83	43	81	75	55	32	12	14	10
Winneshiek	695	682	98	95	65	93	93	79	57	25	30	20
Woodbury	4343	3963	91	79	45	70	58	56	37	21	23	19
Worth	317	261	82	95	65	91	84	72	52	26	31	20
Wright	539	572	106	94	40	94	90	71	33	17	22	12

Appendix A: Immunization Program Directory

Immunization Program Directory			
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